

# **CITY OF LINCOLN, NEBRASKA STANDARD SPECIFICATIONS**

## **Chapter 10**

### **CRUSHED ROCK SURFACING**

| <b>ARTICLE</b> | <b>TITLE</b>                      |
|----------------|-----------------------------------|
| 10.00          | General                           |
| 10.01          | Related Items Specified Elsewhere |
| 10.02          | Materials                         |
|                | A. Crushed Rock                   |
|                | B. Gravel                         |
| 10.03          | Equipment                         |
| 10.04          | Placement and Compaction          |
|                | A. Roadway Surfacing              |
|                | B. Bikeway Surfacing              |
| 10.05          | Basis of Payment                  |

## CHAPTER 10

### CRUSHED ROCK SURFACING

#### 10.00 GENERAL

The work of Crushed Rock Surfacing and of Crushed Rock Bikeway shall include the scarification of the subgrade, the furnishing, hauling, spreading and manipulating of the crushed rock and gravel.

Sources for crushed rock and gravel shall be on the latest edition of the Nebraska Department of Roads "Gravel and Rock Producers" list unless otherwise approved by the Engineer.

#### 10.01 RELATED ITEMS SPECIFIED ELSEWHERE

Chapter 1     Construction and Reconstruction of Pavement  
Chapter 2     Earthwork  
Chapter 7     Sidewalks, Driveways and Bikeways

#### 10.02 MATERIALS

##### A. CRUSHED ROCK

###### 1. General

Crushed rock shall be either limestone or dolomite and shall consist of clean, hard, tough and durable fragments (excluding schist, shale or slate) of uniform quality throughout and shall be free from thin, soft, or elongated pieces, disintegrated stone, dirt, organic or other deleterious material occurring free or as a coating on the rock.

###### 2. Gradation

The crushed rock for surfacing shall be screened after crushing to remove excessive fines and shall be so graded as to meet the following requirements:

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 1-1/2"            | 94-100                 |
| 1/2"              | 0-10                   |

Crushed rock for bikeway surfacing shall meet the following gradation requirements:

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 3/8"              | 100                    |
| #4                | 85-100                 |
| #8                | 53-83                  |
| #16               | 33-53                  |
| #30               | 20-40                  |
| #50               | 16-28                  |
| #100              | 13-23                  |
| #200              | 12-20                  |

## 10.02 MATERIALS (Continued)

### A. CRUSHED ROCK (Continued)

#### 3. Soundness

The fraction of crushed rock retained on the ½-inch sieve shall have a loss ratio of not less than 0.75 when subjected to 26 cycles of freezing and thawing in accordance to AASHTO Method T-103.

#### 4. Abrasion

Crushed rock, when tested for abrasion by AASHTO Method T-96, Grade B, shall have a percentage of wear of not more than 45 percent.

### B. GRAVEL

#### 1. General

Gravel for surfacing shall consist of durable particles of stone and sand with less than five percent (5%) of clay and silt.

#### 2. Gradation

The sieve analysis for the gravel material shall be made in accordance with AASHTO Method T-27 and shall be so graded so as to meet the following requirements:

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 1"                | 100                    |
| #4                | 61-95                  |
| #10               | 0-30                   |
| #200              | 0-4                    |

The percent passing the No. 200 sieve shall be determined in accordance with AASHTO Method T-11.

#### 3. Soundness

The fraction of gravel contained on the No. 16 sieve shall have a soundness not to exceed ten percent (10%) at the end of five (5) cycles, except that the material having a soundness loss greater than ten percent (10%) may be accepted at the discretion of the Engineer, subject to an adjustment of the quantity for which payment will be made. Soundness shall be determined in accordance with AASHTO Method T-104, using sodium sulfate ( $\text{Na}_2\text{SO}_4$ ), except that the soundness loss shall be determined and reported only on the fraction of the aggregate that is retained on the No. 16 sieve.

#### 4. Sampling

Sampling of the material shall be done in accordance with AASHTO Method T-2.

### **10.03 EQUIPMENT**

The Contractor shall furnish adequate equipment necessary for the completion of the work which shall include, but not be limited to, motor grader with scarifying equipment, sheepsfoot roller, pneumatic tire roller and water truck.

Each load of material shall be weighed on an approved calibrated scale. Serially numbered duplicated scale tickets shall be furnished to accompany each truck load of material to the unloading point. Scale tickets shall show the date, time, load number, total weight, tare weight, project number, destination, net weight and type of material.

### **10.04 PLACEMENT & COMPACTION**

#### **A. ROADWAY SURFACING**

In general, this construction shall include combining three inches of crushed rock in the upper layer of the subgrade and the application of a one-inch gravel surface to the crushed rock base, to the widths and cross section as provided by the plans or directed by the Engineer.

The crushed rock material shall be deposited uniformly upon an approved sub- grade in straight, single or double lines, followed immediately thereafter by scarification of the rock and subgrade to produce a uniform soil-rock mixture six inches thick. The mixture shall be spread into a uniform layer and compacted using sheepsfoot roller and water as required. The gravel material shall then be delivered and uniformly spread, followed immediately by compaction using an approved roller and water as required, to the satisfaction of the Engineer.

#### **B. BIKEWAY SURFACING**

In general, bikeways constructed of crushed rock shall consist of a layer of crushed rock placed on a prepared subgrade to the width and cross section as provided by the plans, indicated in the special provisions, or as directed by the Engineer.

### **10.05 BASIS OF PAYMENT**

CRUSHED ROCK ROADWAY SURFACING, IN PLACE, and GRAVEL SURFACING, IN PLACE, that has been completed in conformance with the Plans and Specifications and accepted by the Engineer shall be measured and paid for at the contract unit price bid per ton based on total weight of material delivered. No payment shall be made for materials furnished in excess of that specified in the Contract or by the Engineer. Such payment shall be full compensation for all materials; hauling, spreading, scarifying, and compacting; application of water; and materials, equipment, tools, labor and incidentals necessary to complete the work.

CRUSHED ROCK BIKEWAY SURFACING, IN PLACE that has been completed in conformance with the Plans and Specifications and accepted by the Engineer shall be measured and paid for at the contract unit price bid per ton based on total weight of material delivered. No payment shall be made for materials furnished in excess of that specified in the Contract or by the Engineer. Such payment shall be full compensation for all materials; hauling, spreading, scarifying, and compacting; application of water; and materials, equipment, tools, labor and incidentals necessary to complete the work.